

load to be dropped, its strength shall not be the limiting factor of the supporting system (crane structure).

(v) Units of measure in pounds or both pounds and kilograms (or other indicators of measurement, such as colored indicator lights), capacity of the indicating system, accuracy of the indicating system, and operating instructions and precautions shall be conspicuously marked. If the system used provides no readout but automatically ceases crane operation when the rated load limit is reached under any specific condition of use, the marking shall provide the make and model of the device installed, a description of what it does, how it is operated, and any necessary precautions regarding the system. All of these markings shall be readily visible to the operator.

(vi) All load indicating devices shall operate over the full operating radius. Overall accuracy shall be based on actual applied loads and not on full scale (full capacity) load.

NOTE TO PARAGRAPH (F)(1)(VI): If the accuracy of the load indicating device is based on full scale loads and the device is arbitrarily set at plus or minus 10 percent, it would accept a reading between 90,000 and 110,000 lbs. at full capacity for a machine with a maximum rating of 100,000 lbs. but would also show a reading of between zero and 20,000 lbs. at that outreach (radius) at which the load would be 10,000 lbs.; this is clearly unacceptable. If, however, the accuracy of the device is based on actual applied loads under the same conditions, the acceptable range would remain the same with the 100,000-lb. load but would show a figure between 9,000 and 11,000 lbs. at the 10,000-lb. load; this is an acceptable reading.

(vii) When a load-indicating device uses the radius as a factor in its use or in its operating indications, the indicated radius (which may be in feet and/or meters, or degrees of boom angle, depending on the system used) shall be within the range between 97 percent and 110 percent of the actual (true) radius. When radius is presented in degrees, and feet or meters are required for necessary determinations, a conversion chart shall be provided.

(viii) The load indicating device requirements of this paragraph do not apply to a crane:

(A) Of the trolley equipped bridge type while handling containers known to be and identified as empty, or loaded, and in either case according to the provisions of § 1918.85(b) of this part, or while hoisting other lifts by means of a lifting beam supplied by the crane manufacturer for the purpose and in all cases within the crane rating;

(B) While handling bulk commodities or cargoes by means of clamshell bucket or magnet;

(C) While used to handle or hold hoses in connection with transfer of bulk liquids, or other hose-handled products; or

(D) While the crane is used exclusively to handle cargo or equipment whose total actual gross weight is marked on the unit or units hoisted, and the total actual gross weight never exceeds 11,200 lbs., and the load is less than the rated capacity of the crane at the maximum outreach possible at the time.

(2) [Reserved]

§ 1918.67 Notifying the ship's officers before using certain equipment.

(a) The employer shall notify the officer in charge of the vessel before bringing aboard ship internal combustion or electric powered tools, equipment or vehicles.

(b) The employer shall also notify the officer in charge of the vessel before using the ship's electric power for the operation of any electric tools or equipment.

§ 1918.68 Grounding.

The frames of portable electrical equipment and tools, other than double insulated tools and battery operated tools, shall be grounded through a separate equipment conductor run with or enclosing the circuit conductors.

§ 1918.69 Tools.

(a) *General.* Employers shall not issue or permit the use of visibly unsafe tools.

(b) *Portable electric tools.* (1) Portable hand-held electric tools shall be equipped with switches of a type that must be manually held in position.